In the context of modular representation theory of finite groups, considering a finite group $G$, an algebraically closed field $k$ of characteristic $p$, a block $b$ of $kG$ and a maximal Brauer $(D,e)$, the block $b$ is inertial if $b$ and $e$ lie in a special type of Morita equivalence. A particular situation of this equivalence makes $b$ into a nilpotent block. For a normal $p$-subgroup $P$ of $G$, setting $\bar{G} := G/P$, the $G$-acted epimorphism of group algebras $\pi : kG \to k\bar{G}$ determines the connection between $b$ and its dominating blocks. We investigate the connections between some properties of blocks and of their dominating blocks. We find conditions to verify that a block is inertial if and only if its dominating block is inertial. In some situations the equality of the factor fusion systems associated with a block and with its Brauer correspondent block give information about the hyperfocal subgroups.

References


